

**SCHEMATIC DIAGRAMS  
FOR  
AVIONICS INTERMEDIATE COURSE  
CLASS C7  
C-100-2012**

**UNIT XII  
AIRBORNE RADAR SYSTEM TRAINING  
DEVICE 11D13  
CNTT-M1620  
PREPARED BY  
NAVAL AIR TECHNICAL TRAINING CENTER  
NAVAL AIR STATION MEMPHIS  
MILLINGTON, TENNESSEE**

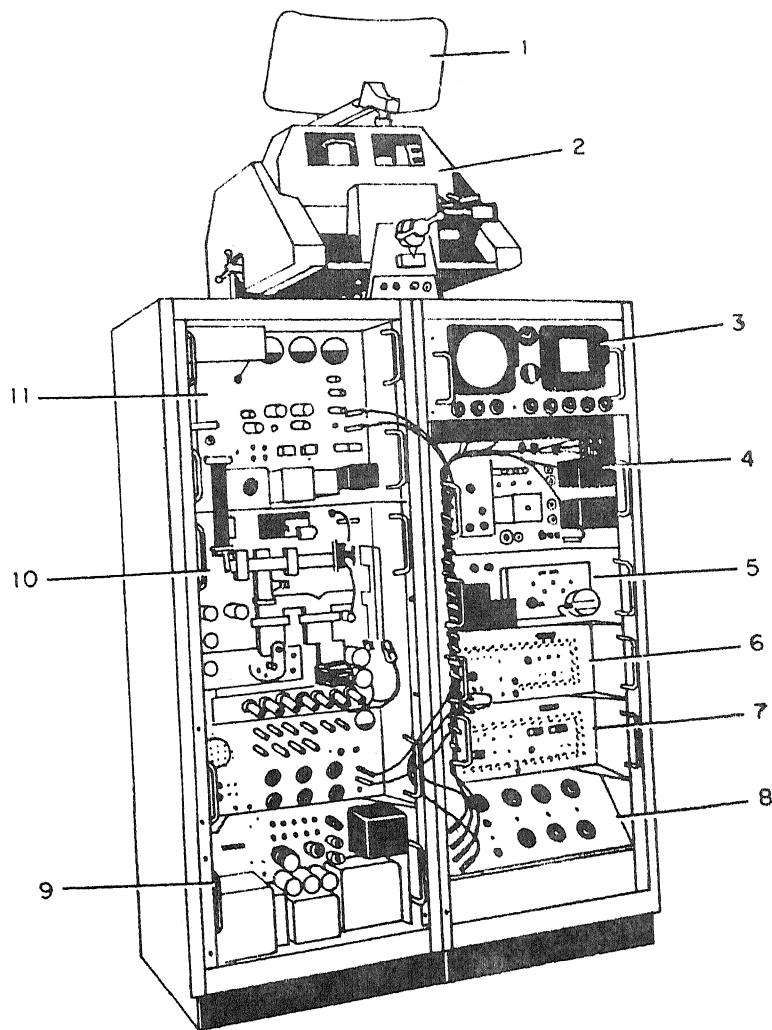
**PREPARED FOR  
CHIEF OF NAVAL TECHNICAL TRAINING**



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- 1. ANTENNA UNIT 850
- 2. ANTENNA STABILIZATION PLATFORM UNIT 1000
- 3. INDICATOR DISPLAY UNIT 1500
- 4. INDICATOR VIDEO UNIT 1400
- 5. ANTENNA CONTROL GROUP UNIT 1800
- 6. SYNCHRONIZER UNIT 600
- 7. RANGE TRACKING UNIT 1900
- 8. TARGET GENERATOR UNIT 2300
- 9. INDICATOR POWER SUPPLY UNIT 700
- 10. RECEIVER/DUPLEXER UNITS  
200/300/900
- 11. TRANSMITTER UNIT 100

BASIC FIRE CONTROL RADAR MAINTENANCE TRAINING SET,  
DEVICE 11D13A

Figure 1.

# TECHNICAL DATA

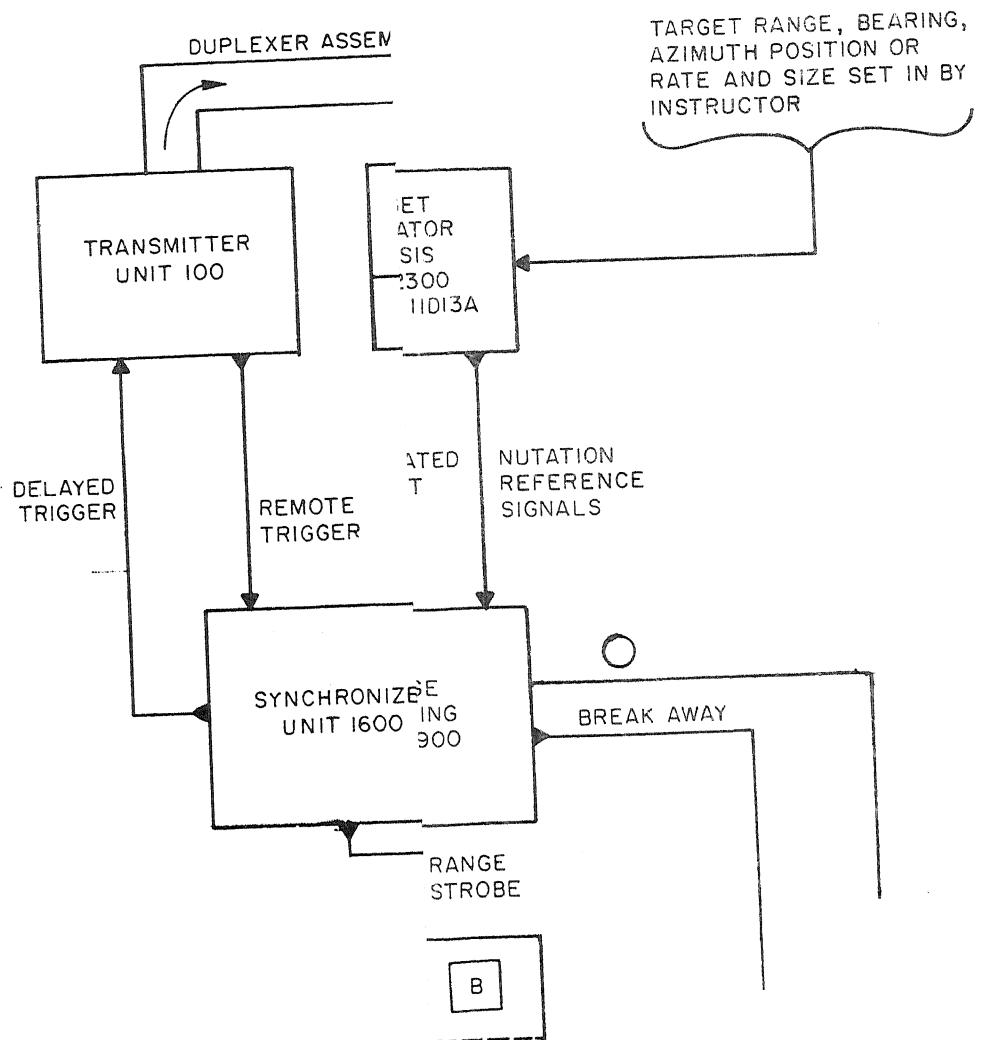
DISPLAYS	
<u>Power</u>	0000 to 9600 megahertz on Freq. 1000 watts maximum 1 microsecond
<u>Search</u>	Centered PPI Range Markers
<u>Fire Control</u>	Acquisition Symbol
<u>Antimutch</u>	B-Scope
<u>Search Radar</u>	Centered PPI B-Scope Artificial Horizon
<u>ANTENNA OPERATION</u>	Artificial Horizon Range Gate Marker
<u>Fire Control</u>	Range Circle Steering Dot
<u>Bomb Director</u>	Breakaway
<u>Elevation</u>	Offset PPI With Range Antimutch Crosshairs Expanded display centers about Range/Azimuth curvatures
RANGES	
<u>Search</u>	6,000 yards 12,000 yards
<u>Fire Control / Bomb Director</u>	10,000 yards 40,000 yards 80,000 yards
RANGE TRACKING	
<u>All Modes</u>	110 degrees/second, min.
<u>Tracking</u>	2000 knots 0 to 40,000 yards
TARGET GENERATOR	
<u>Range</u>	400 to 80,000 yards
<u>Bearing</u>	0 to 360°
<u>Elevation</u>	-45° to +45°
<u>Range Rate</u>	0 to 2,000 knots
<u>Bearing Rate</u>	0 to 10°/sec
<u>Elevation Rate</u>	0 to 10°/sec

ATA, DEVICE 11D13A and 11D13B  
Figure 2

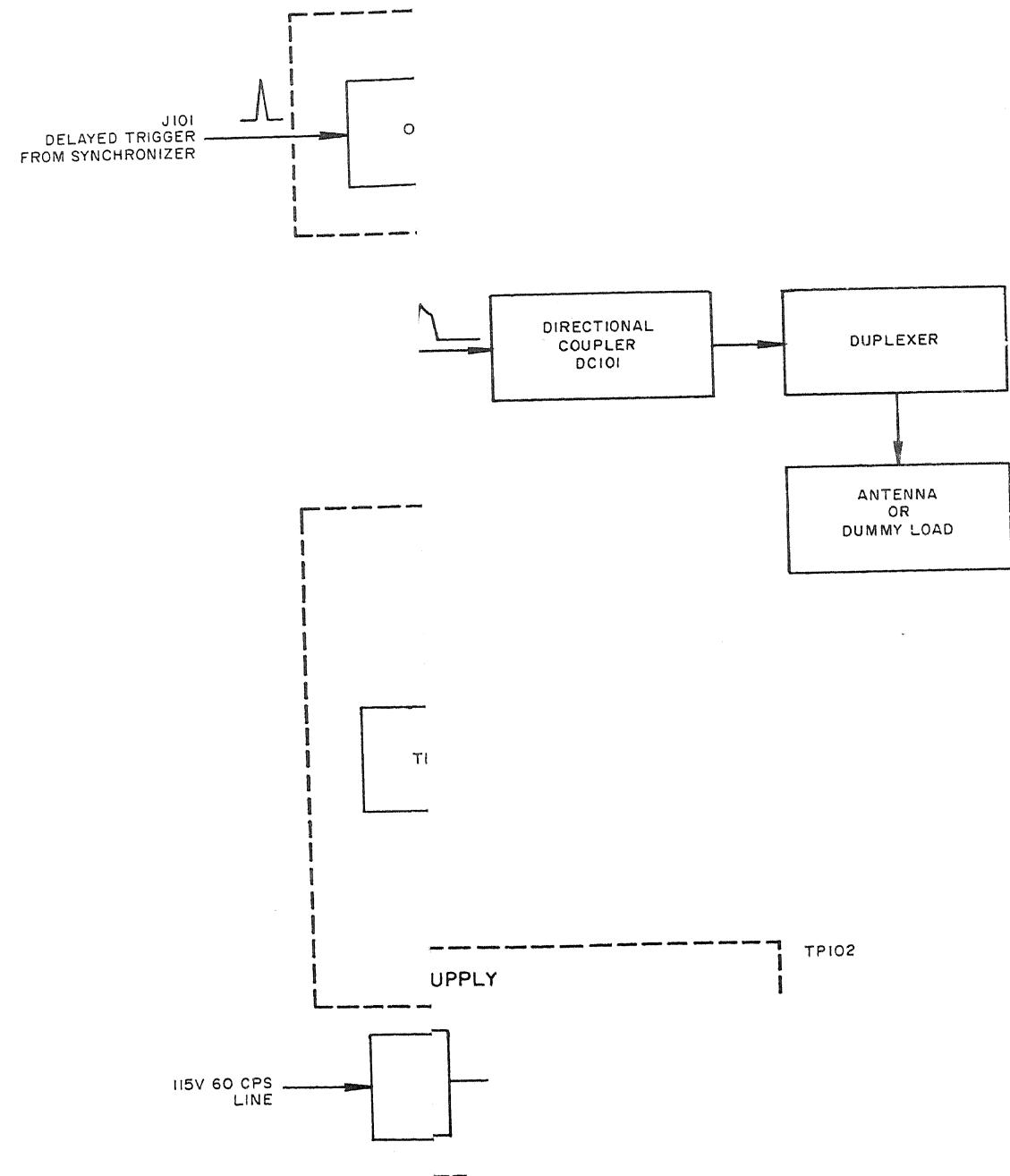
#### NOTES

1. Unless otherwise noted, all cables are double-ended and are listed twice to facilitate location from either end.
2. Double asterisk(\*\*) indicates triple branch cable. Each branch is listed twice to facilitate location from any end.
3. Dagger (†) indicates roll-back cable which is part of harness of unit indicated. Roll-back cables are listed once under the cable grouping for the associated major unit.
4. Refer to Figure 4-3 for relative location and routing of cables. Solid line indicates cable path in front of consoles, dashed line indicates cable path behind consoles. J1 at bottom of main console is a feed-through connector. Roll-back cables A1301-P1 through A1320-P1 and A1501-P1 through A1520-P1 (not shown) connect from individual modules to adjacent unit receptacle as listed.
5. J104 is power test jack in direct coupler DC101.
6. Unit power line rail assembly
7. Connects antenna horn.
8. Bonding strap, to transmit
9. High voltage rarely from on indicator (CRT).
10. Receptables i utilize a t adapter to tel-connect tacle.
11. Roll-back cat dangling co











A

B

C

D

C102(A-4) IS  $2200 \mu\mu F$   
 3-3 BYPASS IN CIRCUIT

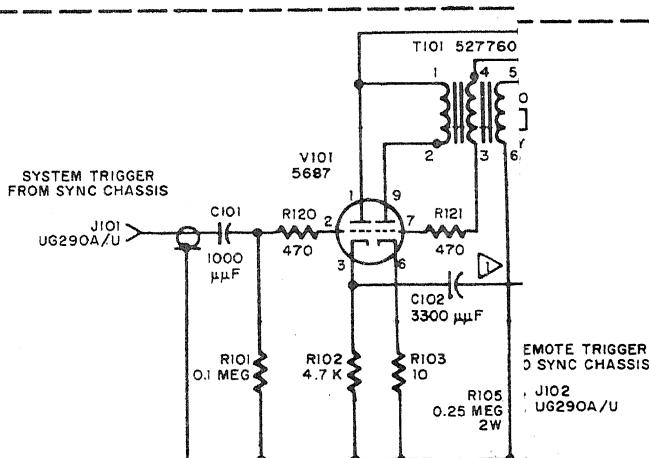
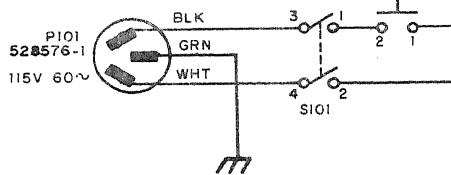
E SPECIFIED, ALL  
 1 OHMS, 1/2W  $\pm 5\%$

S102

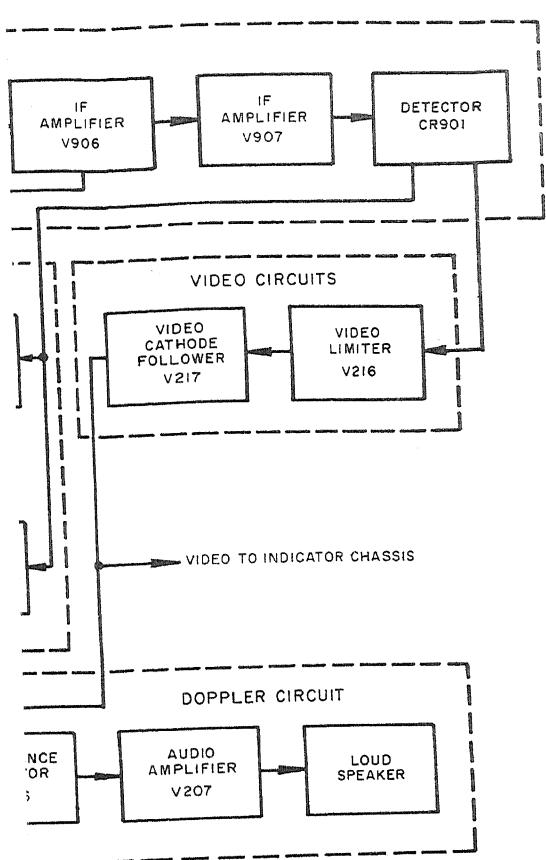
ARE IN  $\mu F$  500V

WIRING NOTES SEE 60999

S101









UNLESS OTHERWISE SPECIFIED:

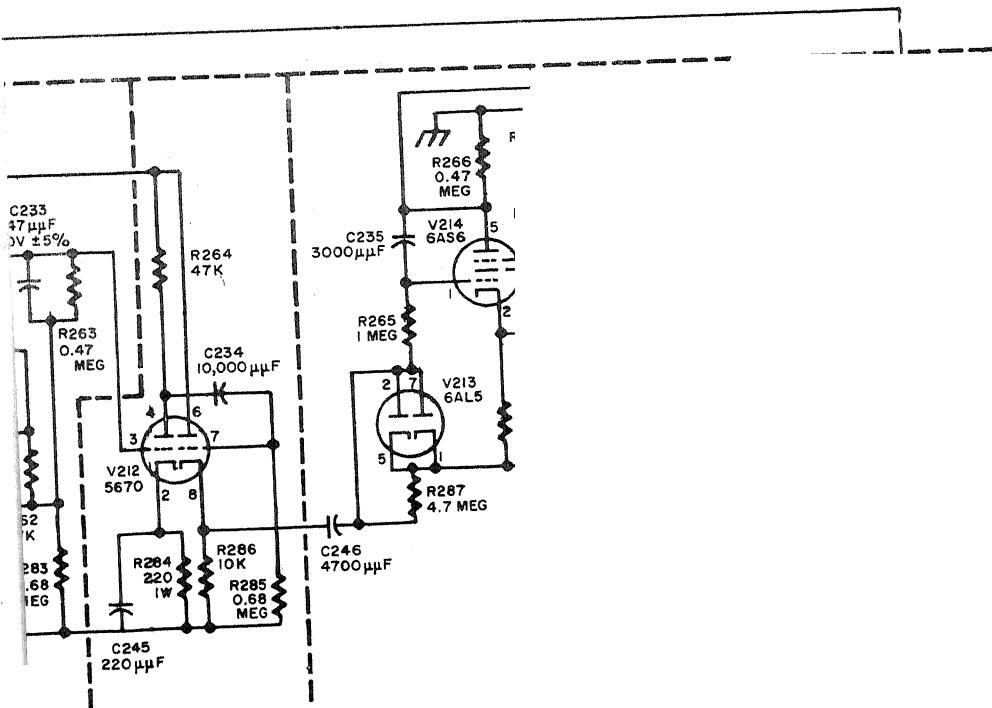
ALL RESISTORS ARE IN OHMS 1/2W  $\pm 5\%$

ALL CAPACITORS ARE IN  $\mu F$  400V  $\pm 10\%$

CAPACITORS IN  $\mu\mu F$  ARE 500V  $\pm 5\%$

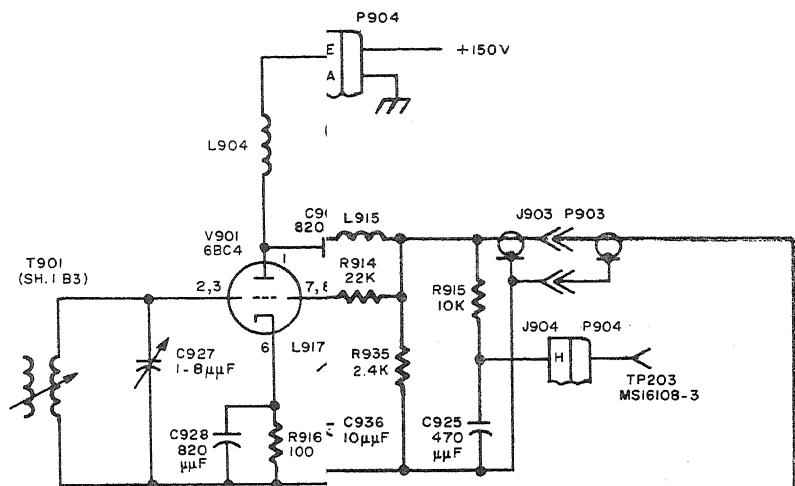
► THESE CAPACITORS ARE 600V (529746-1)

FOR ADDITIONAL WIRING NOTES SEE 60999

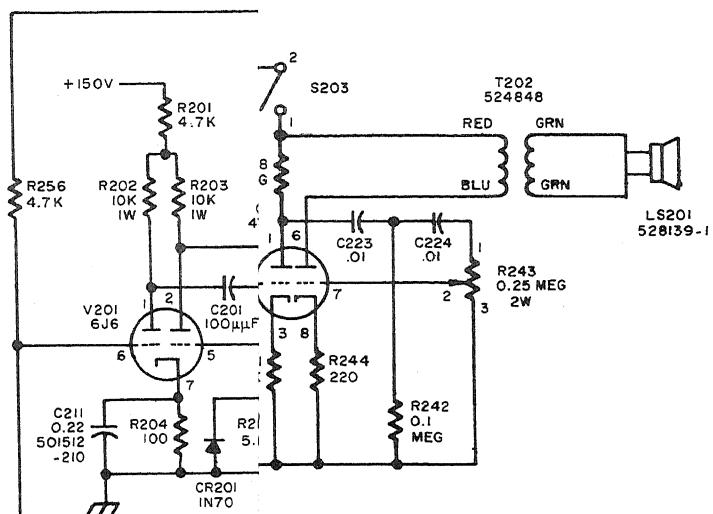




A

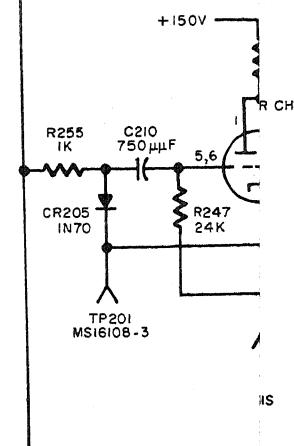


B



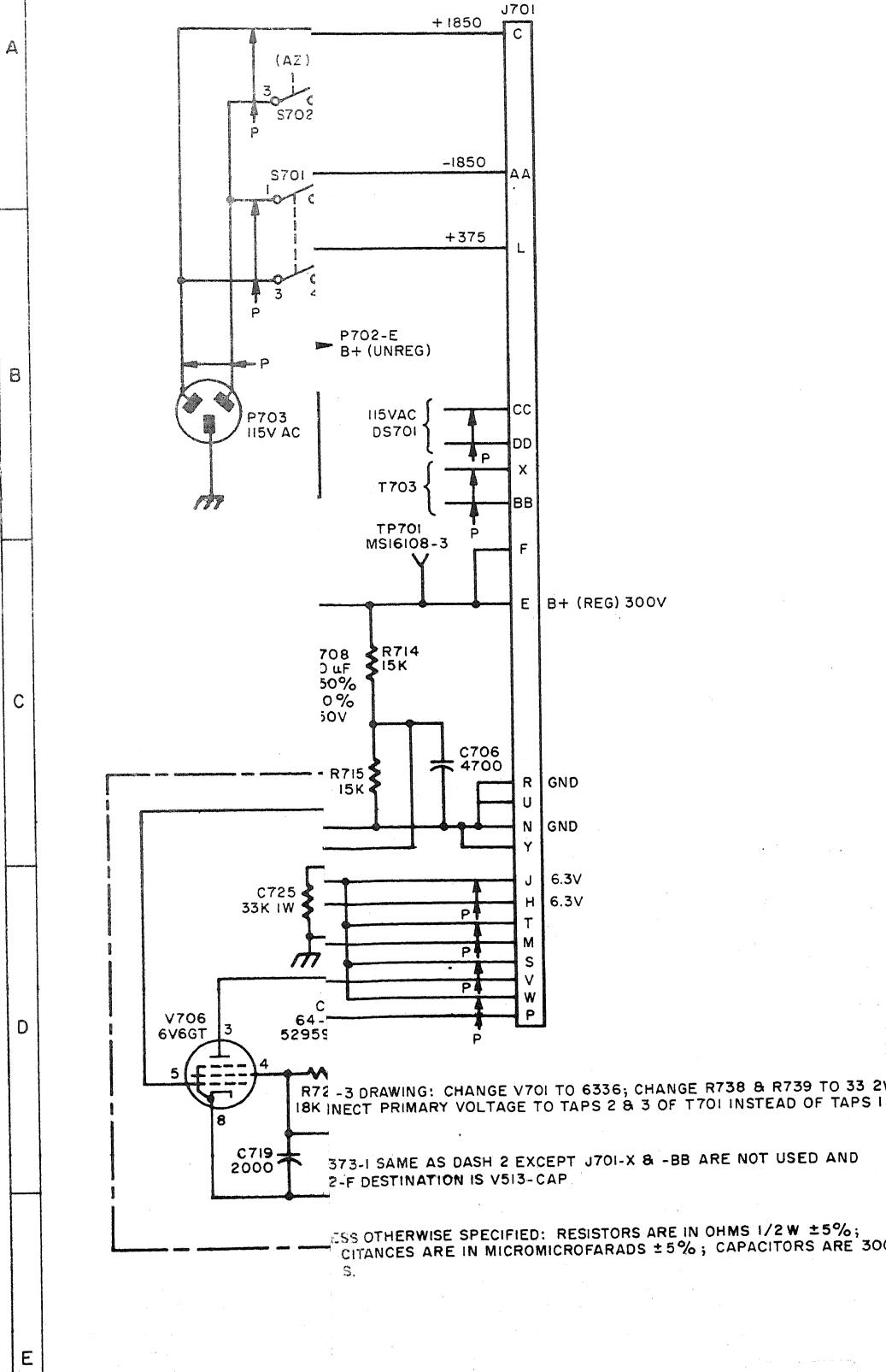
C

D

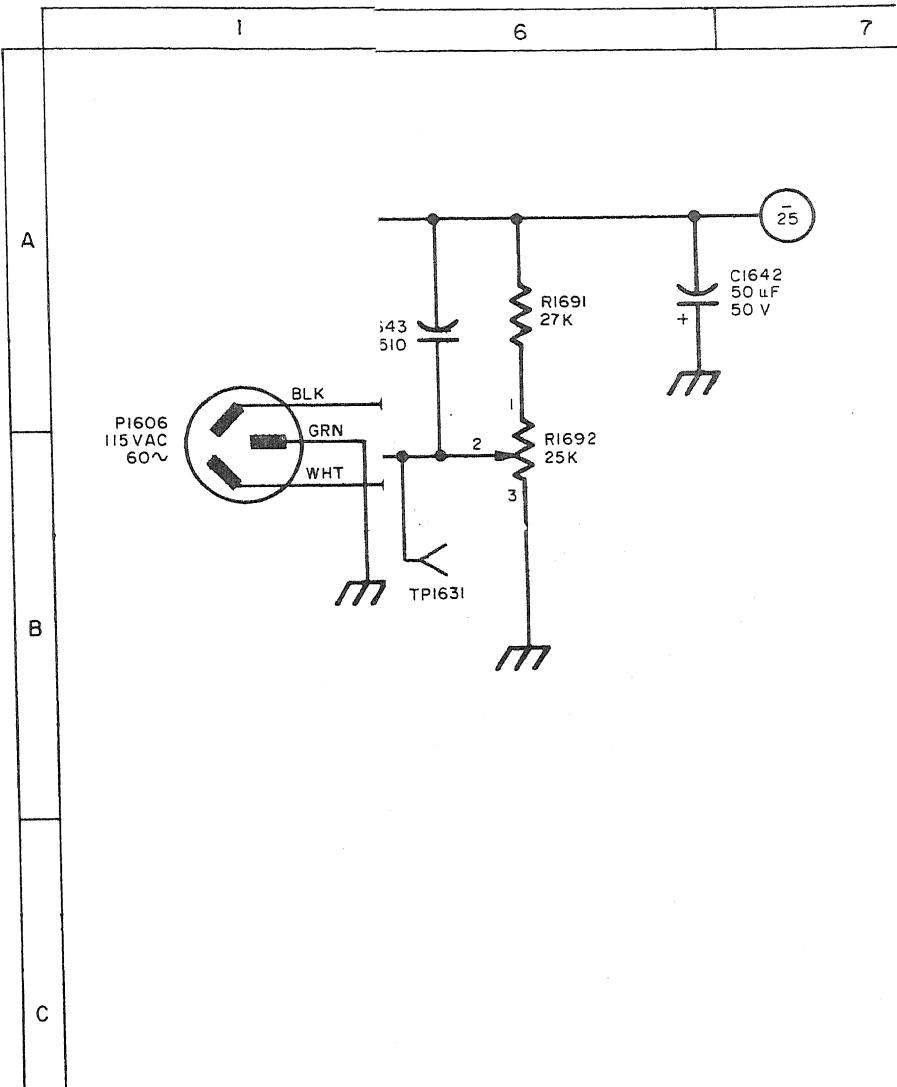


E

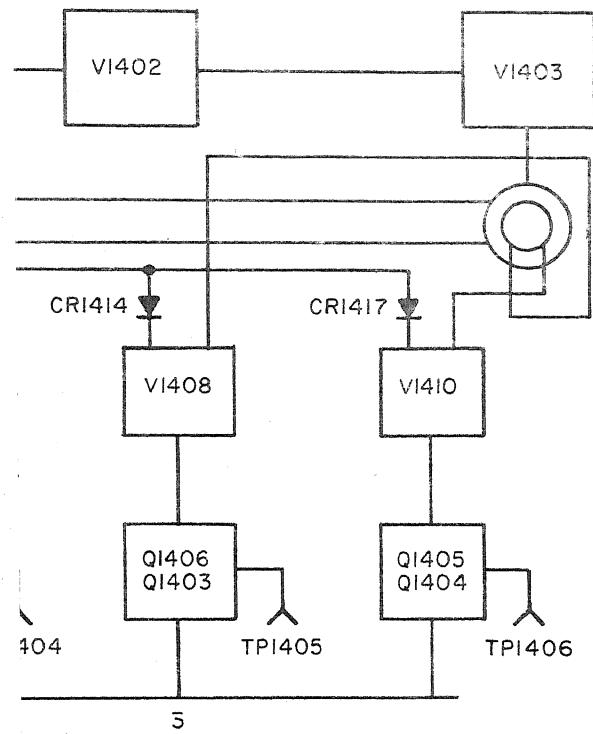
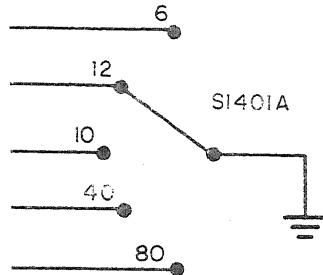












Deflection, Unblanking and  
Block Diagram



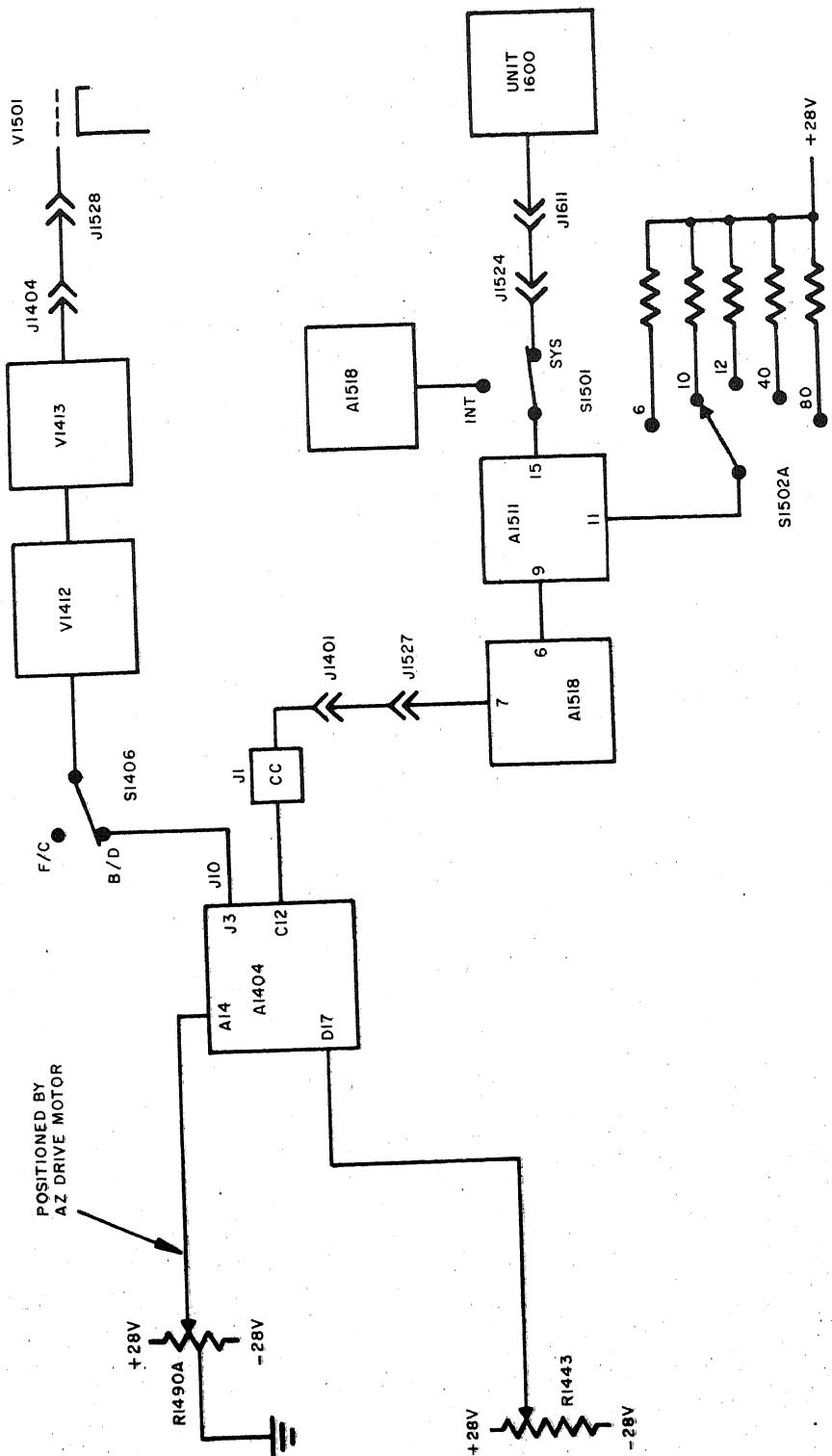
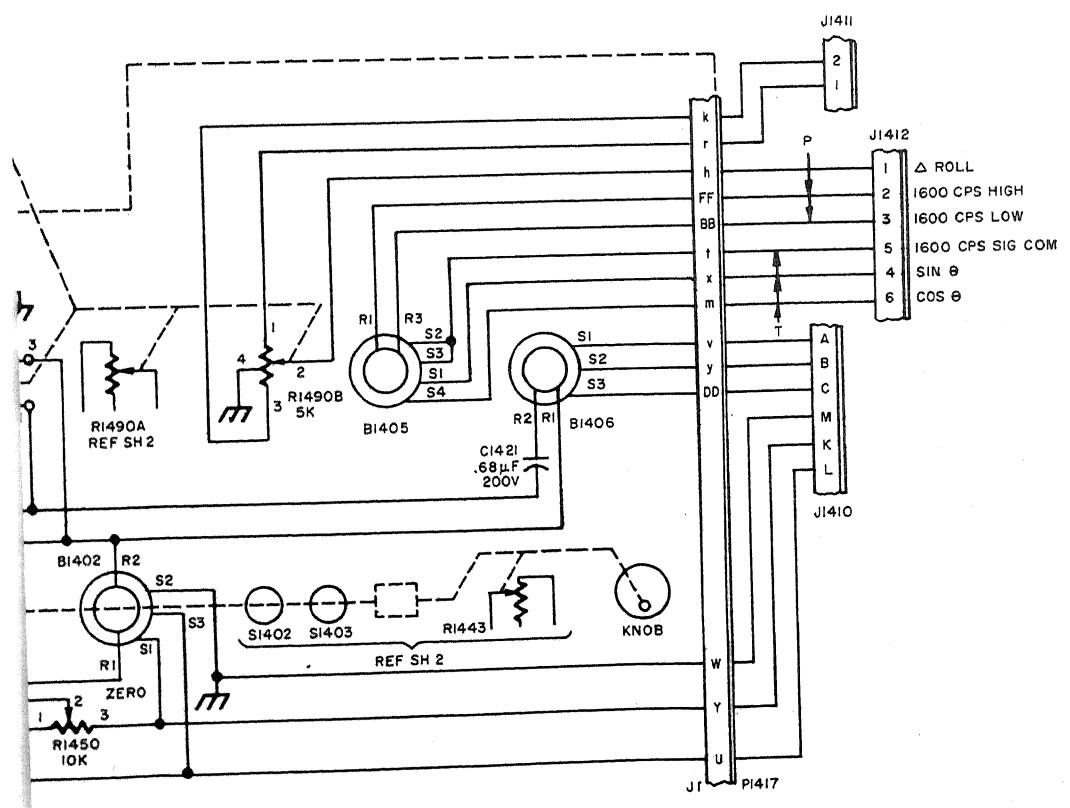


Figure 12. Azimuth Marker Block Diagram

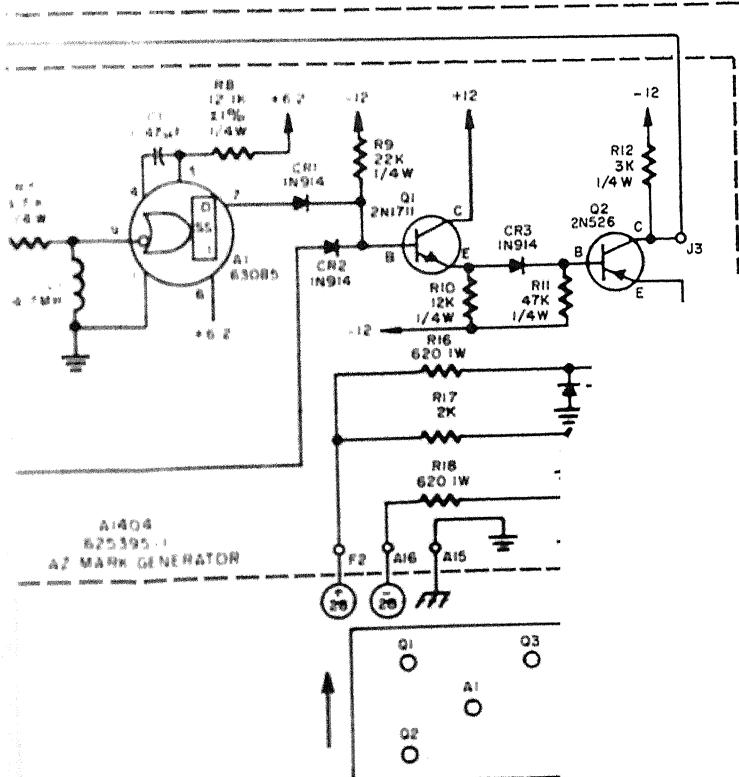
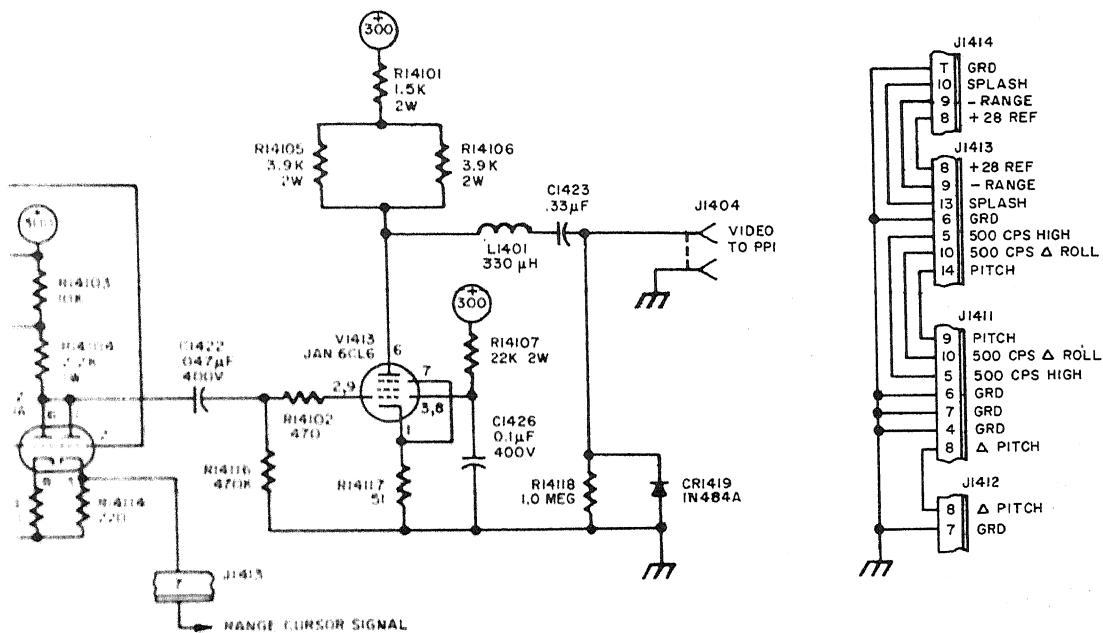




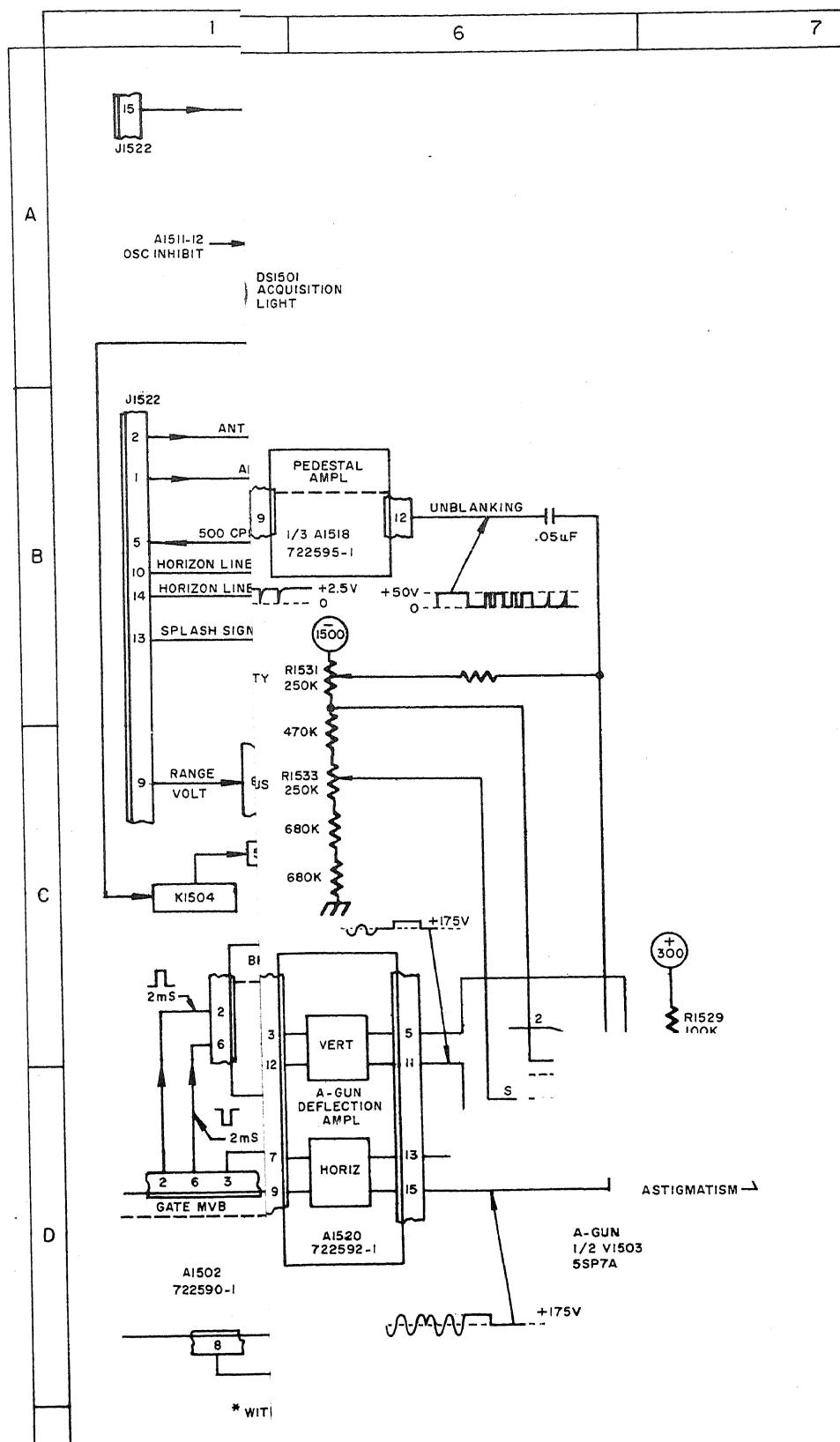


2 (D5)	2 (A5)	2 (D2)	2 (B2)	2 (B3)
2 (D3)	2 (A3)	2 (D3)	2 (B3)	2 (B3)
2 (D4)	2 (D4)	2 (B4)	1 (D9)	1 (D10)
2 (D4)	1 (A2)	1 (D2)	1 (D3)	2 (B4)
(D11 - 14)	(5 - 6 - 7)	(B - 9 - 10)	(11 - 12 - 13)	(14 - 15 - 16)

LOCATION SHEET AND ZONE









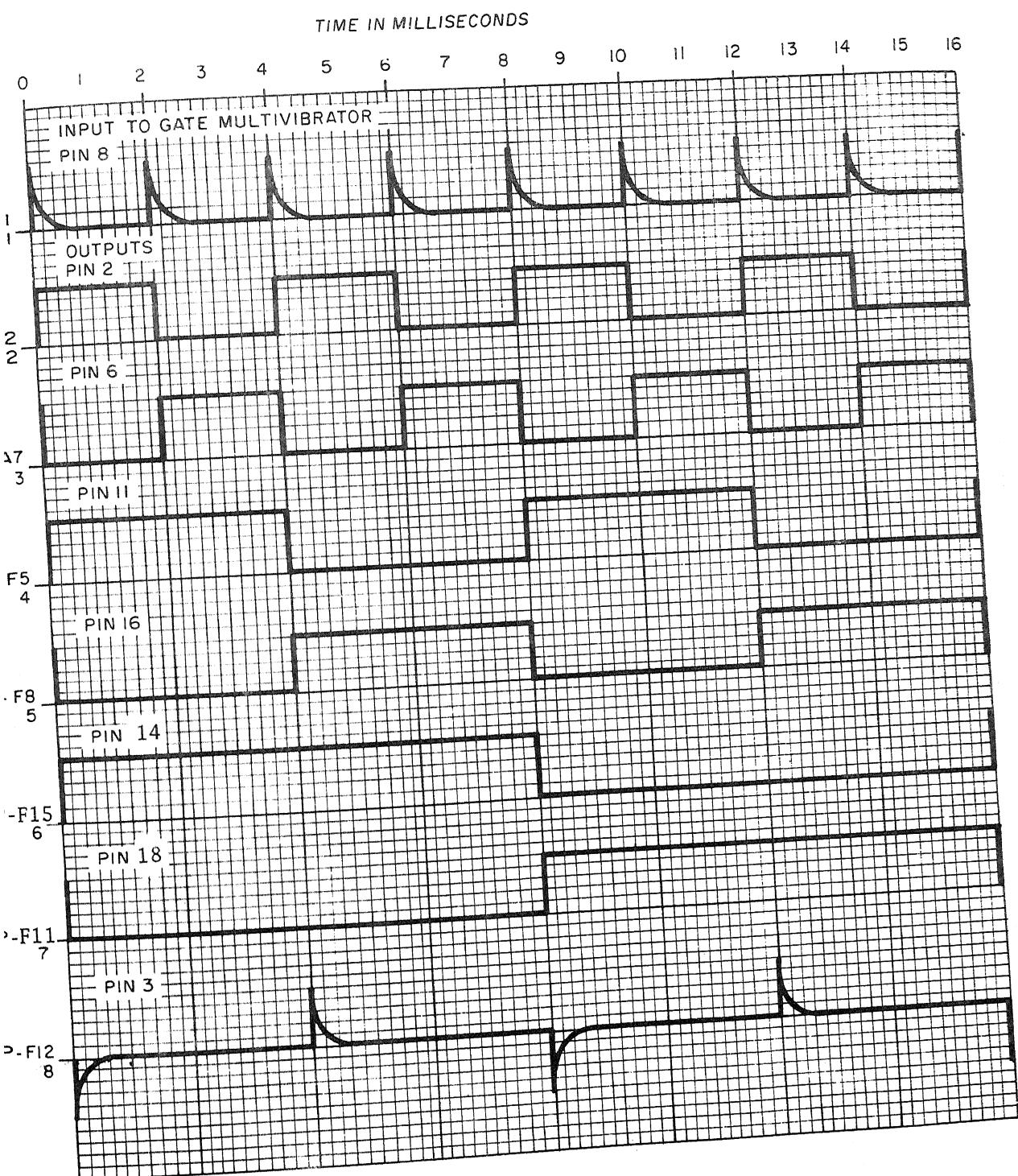


Figure 15. Gate Multivibrator A1502

(CIRCLE) FC TRACK ABOVE 3500 YDS

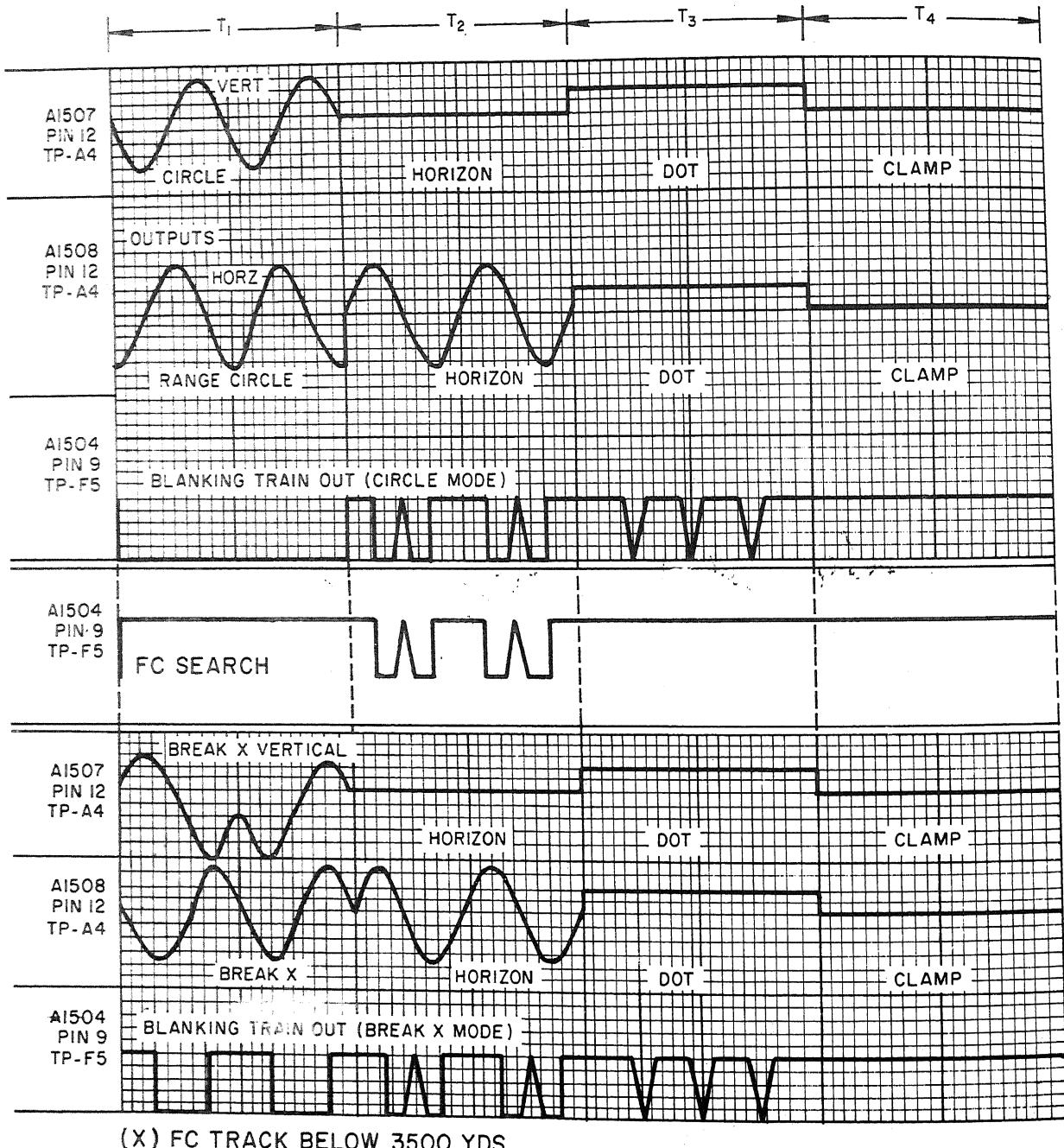
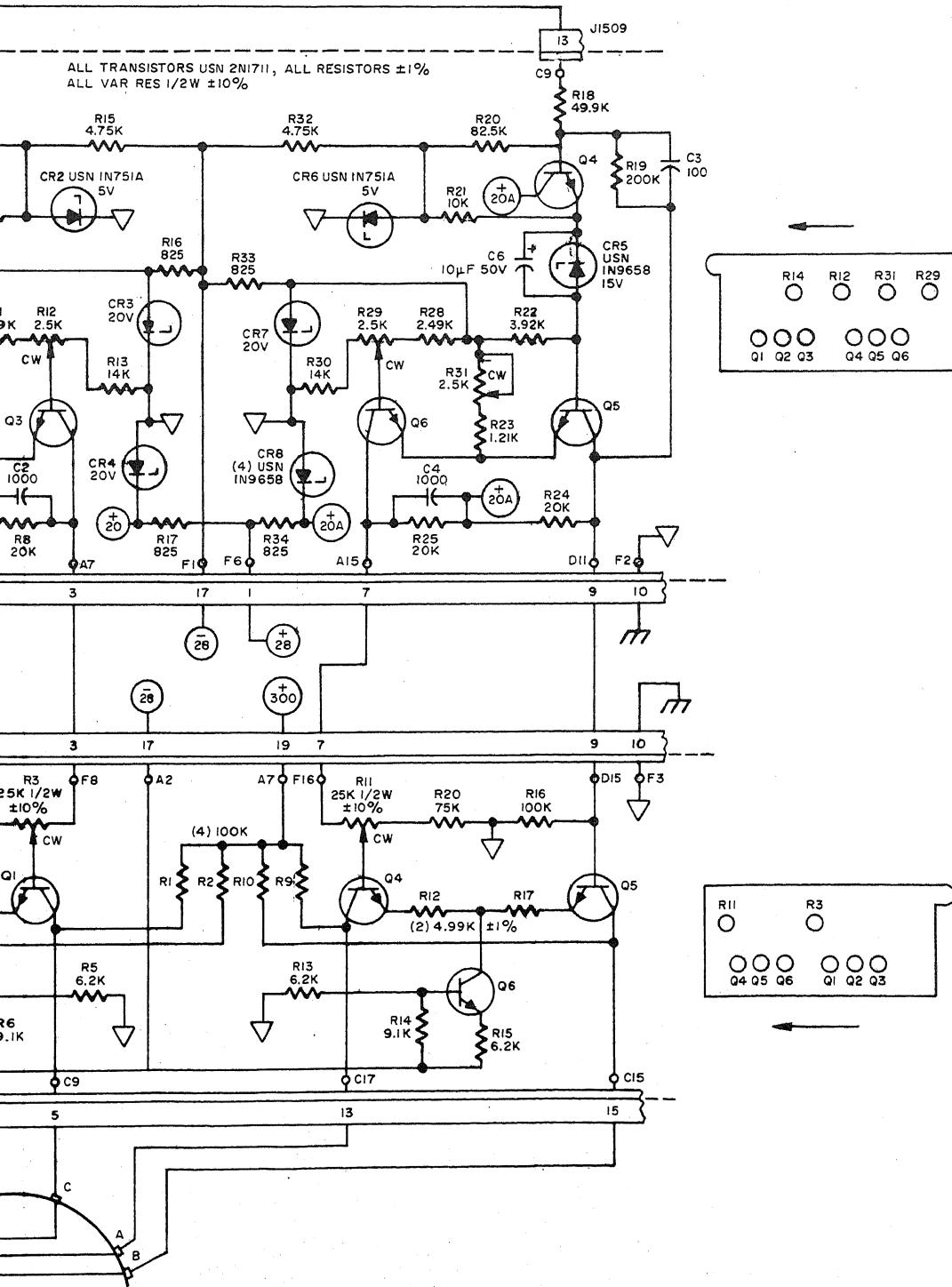


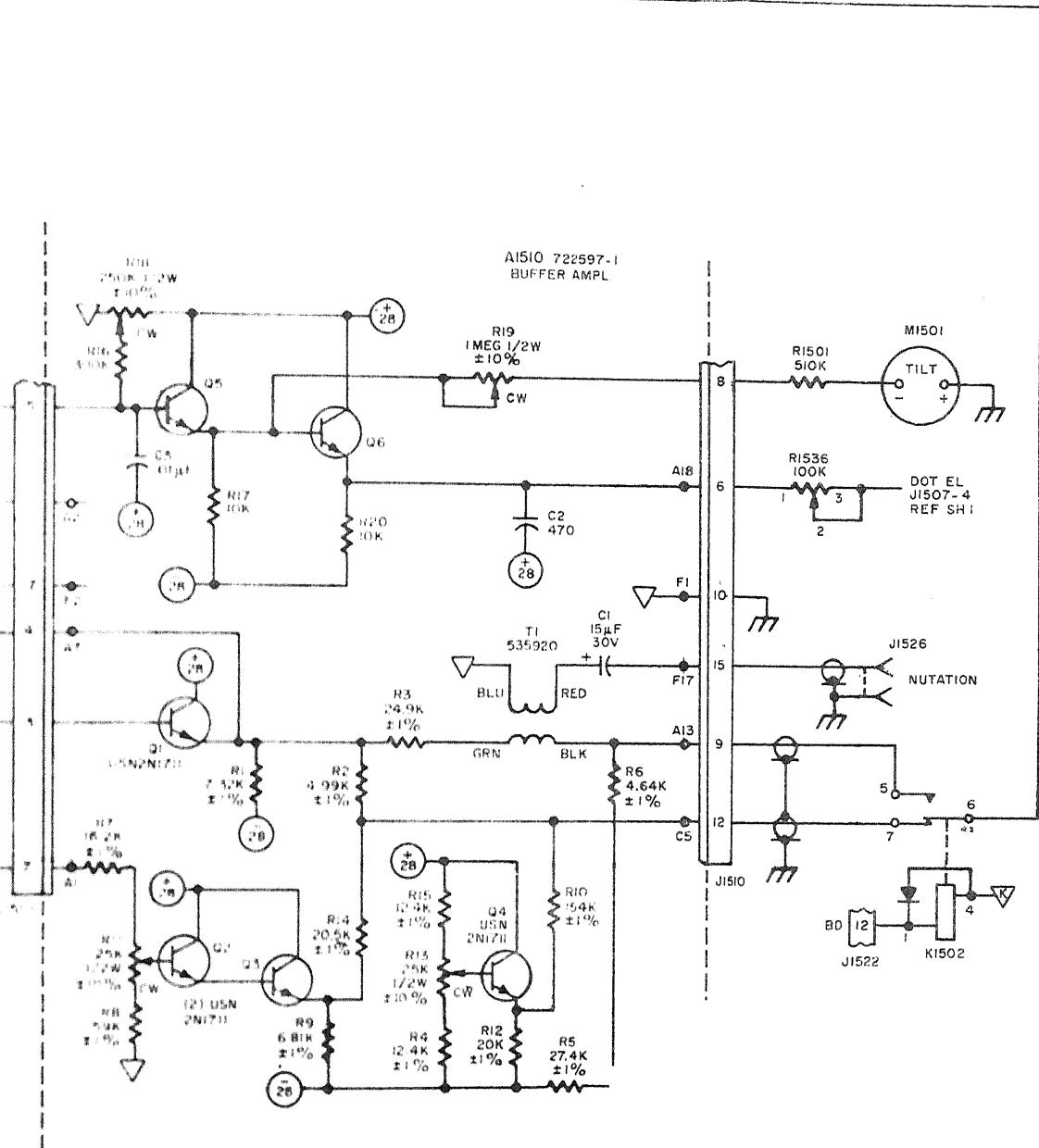
Figure 16. A-Gun Wave Forms and Sequencing



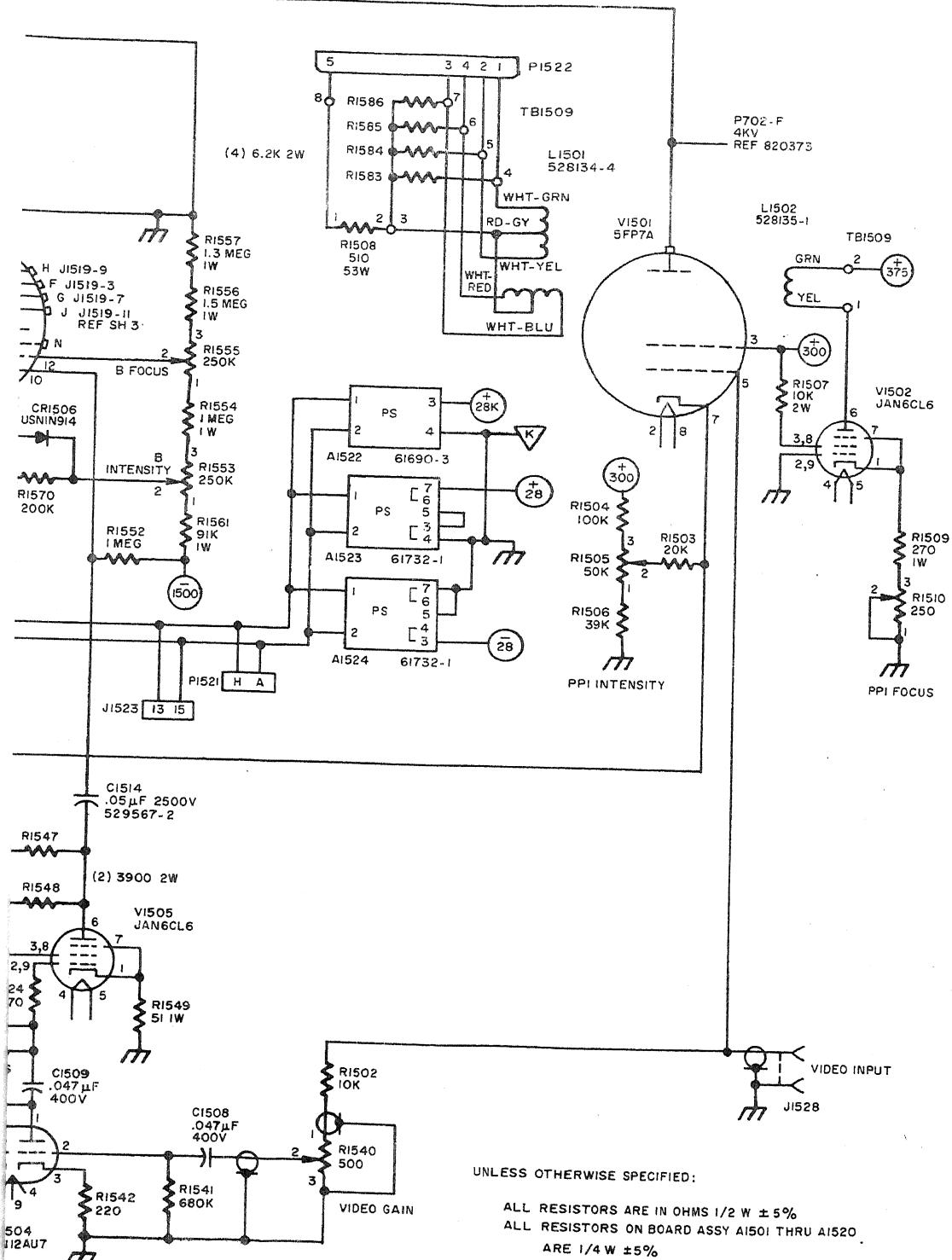








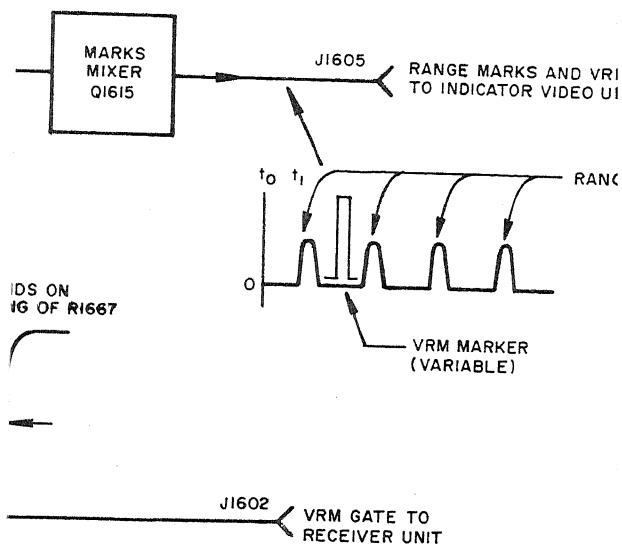
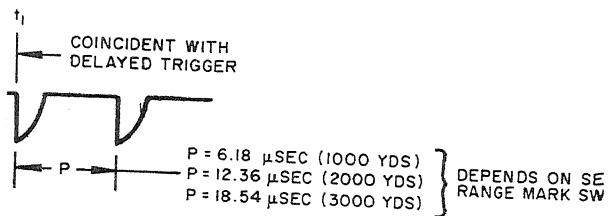




UNLESS OTHERWISE SPECIFIED.

ALL RESISTORS ARE IN OHMS 1/2 W  $\pm 5\%$   
ALL RESISTORS ON BOARD ASSY A1501 THRU A1520  
ARE 1/4 W  $\pm 5\%$   
ALL VARIABLE RESISTORS ARE 2W  
ALL CAPACITORS ARE IN  $\mu$ F 500V  
ALL DIODES ARE JAN IN270  
ALL TRANSISTORS ARE JAN 2N697





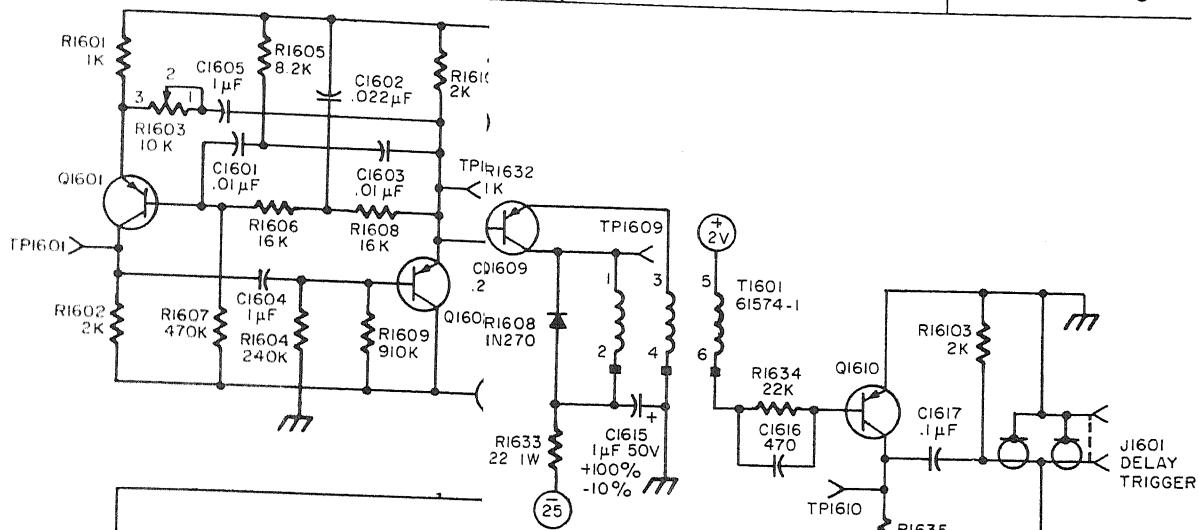
J1603 → 'O' SCOPE SYNC  
EXCEPT FOR A-GUN

J1611 → MASTER TRIGGER TO  
INDICATOR DISPLAY UNIT

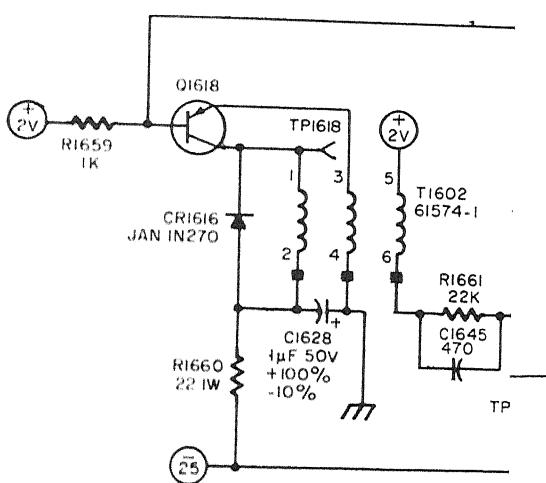
J1612 → MASTER TRIGGER TO  
TARGET GENERATOR AND  
RANGE TRACKING UNITS



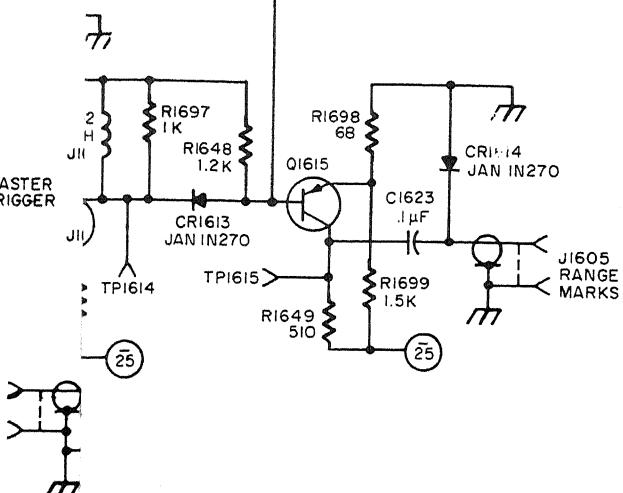
A



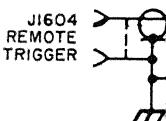
B



C



D



UNLESS OTHERWISE SPECIFIED:

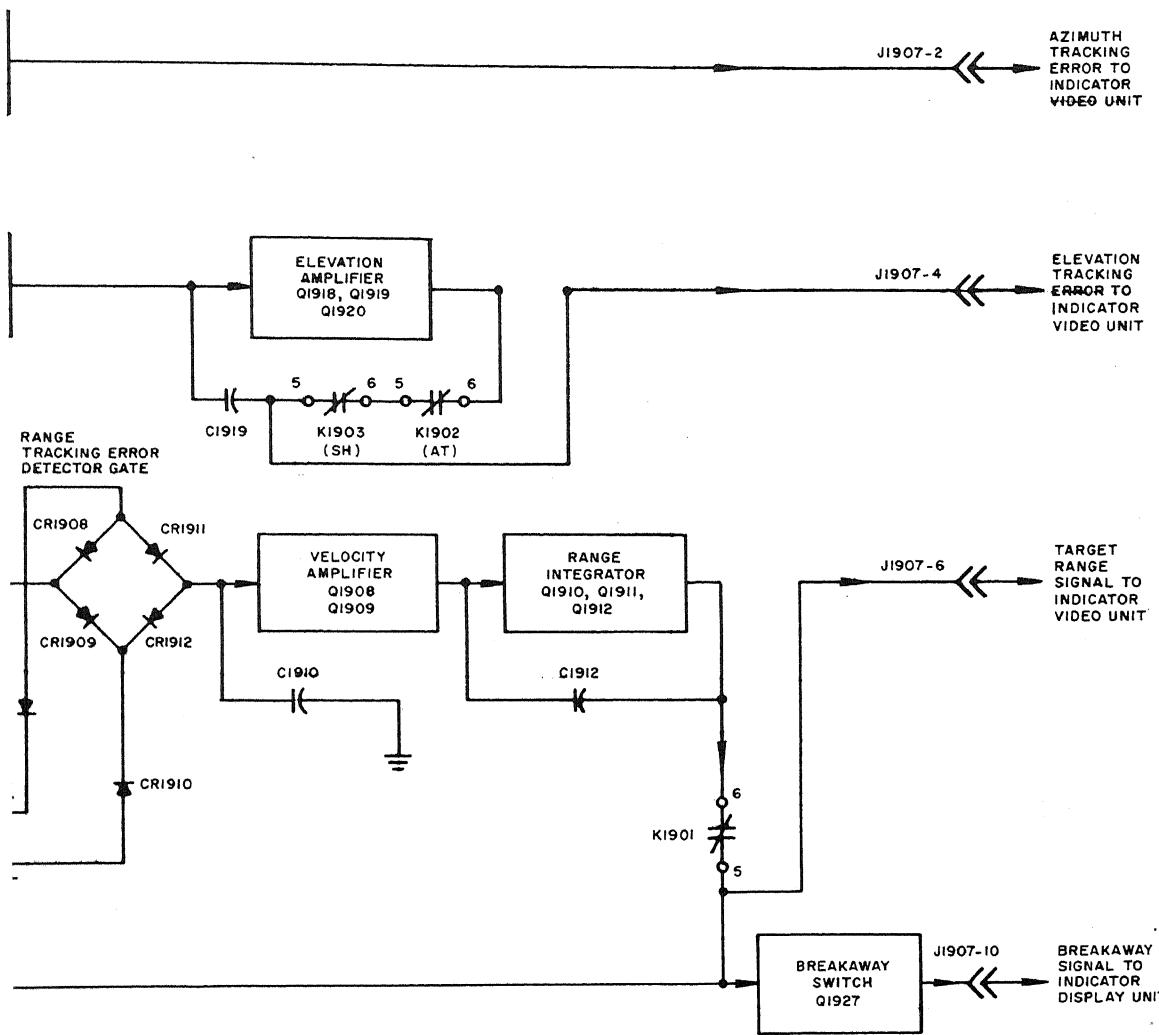
ALL RESISTORS ARE IN OHMS 1/2W ±5%

ALL TRANSISTORS ARE 2N404A

ALL CAPACITORS ARE IN μF 500V ±5%

E





Range and Angle Tracking Unit 1900, Block Diagram



